Jim Russell photo

City of Beaverton
2010 Water Quality Report
Your Water Is Our First Priority

The City of Beaverton is pleased to present you with this 2010 Water Quality Report. The purpose of the report is:

To provide you with information about your drinking water and comply with the reporting requirements of the U.S. Environmental Protection Agency (EPA), Consumer Confidence Report Rule, 40 CFR, Part 141, Subpart O.

Using data collected in 2010, this report summarizes information about your water supply sources, the water system facilities that deliver water to your tap, and the quality of your drinking water. Also included is information about programs underway that are helping to ensure that you have safe and dependable drinking water.

The City of Beaverton is proud of the high quality of our water supply, which meets or exceeds state and federal water quality requirements. If you have any questions regarding your water quality or about information presented in this report, please call us at 503-350-4017.

Si Habla Español: Este informe contiene información muy importante. Tradúscalo ó hable con un amigo quien lo entienda bien.

Information in this report is available upon request in alternative formats by calling the City of Beaverton's Water Quality Report Hotline at 503-350-4017.

City of Beaverton's Web site home page:
www.beavertonoregon.gov

City's Web page for Water Quality Report:
http://www.beavertonoregon.gov/departments/ecd/Utilities/waterqualityreport.aspx

Beaverton
OREGON

Beaverton's Drinking Water Sources

The primary source of filtered drinking water in Beaverton's service area is the Joint Water Commission (JWC) water treatment plant located south of Forest Grove. The water treatment plant filters surface water pumped from the nearby upper Tualatin River and can produce up to 75 million gallons a day (mgd) of finished drinking water. The City owns a 25 percent share in the JWC water treatment plant, allowing the City up to 18.75 mgd of treated water.

JWC

The City is a member of the JWC, which is an intergovernmental water supply agency whose owner-members include the Cities of Beaverton, Hillsboro, and Forest Grove, and the Tualatin Valley Water District. The JWC was formed to store, manage, treat, and convey drinking water for its members and supplies water to as many as 400,000 people.

Water Leaving Barney Reservoir

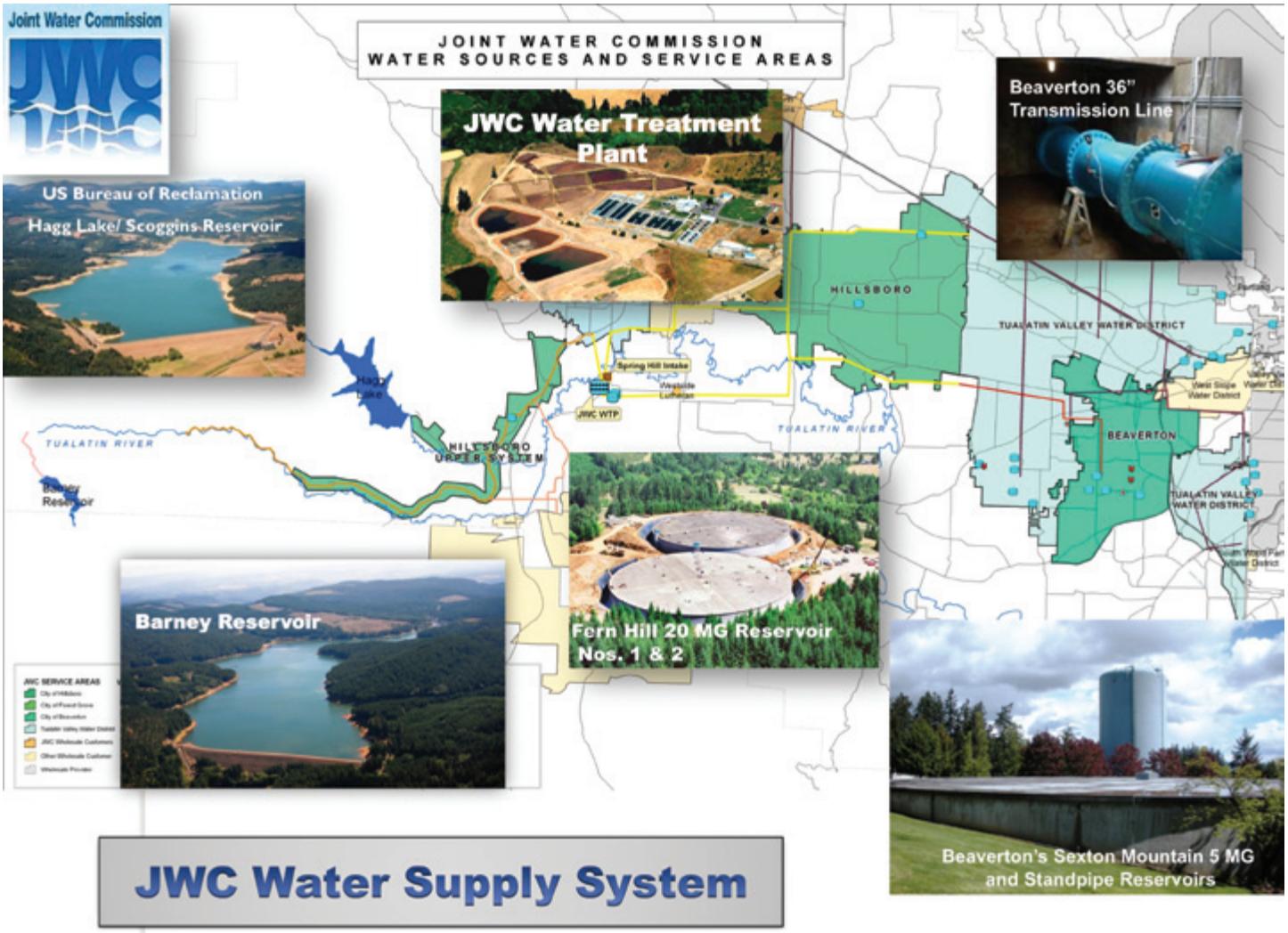
During the summer, when drinking water demand is high and Tualatin River streamflow is low, water is released from Hagg Lake (Scoggins Reservoir) and Barney Reservoir (formed behind a dam on the Trask River in the Coast Range) to compensate for the amount removed for Beaverton's summer use. Water released from Barney Reservoir is diverted by pipes from the Trask River basin into the upper Tualatin River.

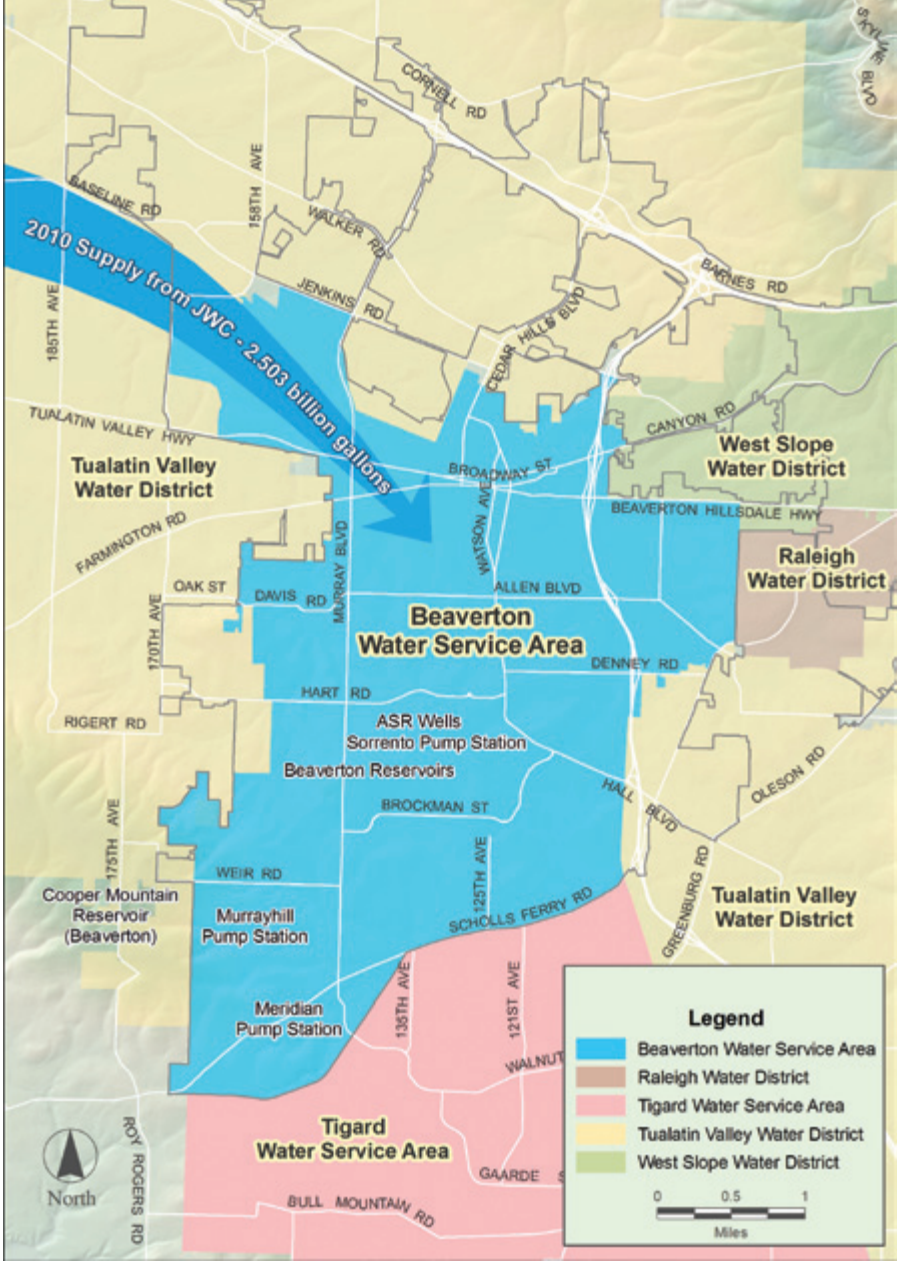
The City owns yearly water rights of up to 1.3 billion gallons (4,000 acre-feet) in Scoggins Reservoir and 1.4 billion gallons (4,300 acre-feet) in Barney Reservoir. Water originating from these two reservoirs is the source of most of the City's raw water (before treatment) during the summer. Release of stored raw water from the two reservoirs increases summertime streamflow in the Tualatin River, helping to sustain a healthy river ecosystem. Every winter and spring, the City uses its 16 mgd natural streamflow water right to meet daily water supply demands. Surface water from the Tualatin River is filtered in the JWC water treatment plant before delivery to the City.

Finished drinking water from the JWC water treatment plant is pumped about one-half mile up to the Fern Hill Reservoirs, two 20-million-gallon (MG) storage reservoirs situated at 520 feet elevation above sea level.

To transport water from the JWC water treatment plant to Beaverton, the City owns 14 mgd capacity in the JWC South Transmission Line. The City also owns emergency backup capacity in the parallel JWC North Transmission Line. From the Fern Hill Reservoirs, water travels about 20 miles by gravity through transmission lines to Beaverton, where the City's two terminal storage reservoirs are located. The two reservoirs hold a combined total of 20 MG and are owned and operated entirely by the City.

Since 1999, the City has used aquifer storage and recovery (ASR) to delay the purchase of new water supply facilities. During the winter and spring, Beaverton injects treated drinking water from the JWC water treatment plant into natural underground basalt formations (aquifers), displacing native groundwater. During the summer months, treated water is recovered from ASR wells to supplement JWC surface water to help meet peak season demands (up to 17 mgd). Acting as a conservation measure, ASR conserves surface water from primary sources (rivers and dams) during environmentally stressful summer seasons.





Cooper Mountain Storage Reservoir, 5 million gallons (MG) stored at 790 feet elevation.

Your City Water System at a Glance

Drinking water is one of the most critical services that the City provides on a daily basis to the residents and businesses of Beaverton. In 2010, the City supplied drinking water to about 73,000 residents, or about 81 percent of the total 89,803 residents who live within the City limits. The remaining 20 percent of our residents' water is supplied by the Tualatin Valley Water District, West Slope Water District, and Raleigh Water District.

Following are facts about the City's water system:

- The distribution system includes five local water storage reservoirs, with a combined total storage volume of 28.25 MG.
- The City owns additional reservoir storage of 10 MG near the JWC water treatment plant.
- The distribution system (separate from the JWC supply system) consists of approximately 270 miles of pipe, ranging from 4 inches to 36 inches in diameter.
- In 2010, the City consumed an average of 6.86 mgd or a total of 2.504 billion gallons of water for the year. On August 16, 2010, the City consumed 12.89 MG of drinking water, the highest demand day.
- The City has a 3- to 4-day supply of stored drinking water in its local reservoirs.
- The distribution system contains four pumping stations that lift water from the largest water service pressure zone on the valley floor to the nine other higher elevation water pressure zones within the City's water service area.
- The City's owned capacity in the JWC water treatment plant is 18.75 mgd.
- The City has an additional water supply of 6 mgd available from ASR wells, commonly used only in the summer.
- In addition to the JWC and ASR wells, there is an emergency supply capacity of 8 mgd available from two adjoining public water providers (Tualatin Valley Water District and City of Portland).

Drinking Water Fluoridation

The City fluoridates its drinking water to improve the dental health for consumers of Beaverton's water. The City's fluoridation system was completed, tested, and began service in mid-May 2004 with a target fluoridation level of 0.9 parts per million (ppm). In early January 2011, the U.S. Department of Health and Human Services (HHS) and the U.S. Environmental Protection Agency's (EPA) recommended lowering the fluoride level in drinking water (http://www.hhs.gov/news/press/2011pres/01/20110107a.html). Based on those recommendations, the City reduced the target fluoride level from 0.9 ppm to 0.7 ppm pending further EPA advice and regulatory action. The HHS and EPA are expected to publish final guidance for community water fluoridation later this year.

Sodium fluoride is added to Beaverton's drinking water after it leaves the JWC water treatment plant and before entering the City for distribution. The City's fluoride feed facility employs sensitive instruments to measure and maintain the desired level of fluoride in the drinking water system. In addition, seven online electronic fluoride analyzers are situated in different locations throughout the City to monitor fluoride levels in the drinking water 24 hours a day.

Water Questions? We Have Answers!

Water Billing Question?
☎ Call 503-526-2257

Water Quality Question?
☎ Call Beth Dolbow at 503-781-0704
E-mail bdolbow@beavertonoregon.gov

Water Conservation Question?
☎ Call Glen Dorsey at 503-350-4059
E-mail gdorsey@beavertonoregon.gov

Backflow Prevention Question?
☎ Call Ben Rosales at 503-350-4042
E-mail brosales@beavertonoregon.gov

Water Pressure Question?
☎ Call Rick Weaver at 503-526-2646
E-mail rweaver@beavertonoregon.gov

Future Water Sources Question?
☎ Call David Winship at 503-526-2434
E-mail dwinship@beavertonoregon.gov

Water Emergency?
☎ Call 503-526-2220

After-hours Water Emergency?
☎ Call 503-526-2260

http://www.beavertonoregon.gov/departments/ecd/utilities/whotocall.aspx

Water Quality Testing

The City is committed to providing safe drinking water to its water consumers. To ensure that the City's drinking water meets state and federal drinking water standards, the City collects an average of 133 samples per month (1,606 samples per year) for testing by a State-certified laboratory. A table summarizing 2010 water quality data is provided at the end of this report.

For a fee, private laboratories will test your tap water for lead and other substances. Not all laboratories are certified to test for all contaminants. For information regarding water quality testing, consult the Oregon Drinking Water Program's Web site. Download a complete list of all laboratories certified by the Oregon Department of Human Services. You will need the FREE Adobe Acrobat Reader to view these files. http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Documents/acclab.pdf

Safe Drinking Water Hotline

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. For more information about contaminants and potential health effects, call the U.S. Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (1-800-426-4791).

Beaverton's ASR Well No. 4 Pump House.

City of Beaverton ASR – Aquifer Storage and Recovery

The City's drinking water program will continue to reduce the amount of peak-season water supply demand so as not to exceed the City-owned capacity of 18.75 mgd in the JWC water treatment plant and 14 mgd in the JWC transmission pipelines. The City is accomplishing this by using technology that provides drinking water during times of high use through a natural underground storage system: aquifer storage and recovery (ASR). ASR involves pumping drinking water from the JWC water treatment plant (the same water our customers drink every day) into deep natural underground basalt formations, or aquifers, where it is stored for later use. The City used ASR as an alternative way to increase summer water supply by up to 6 mgd during 2010.

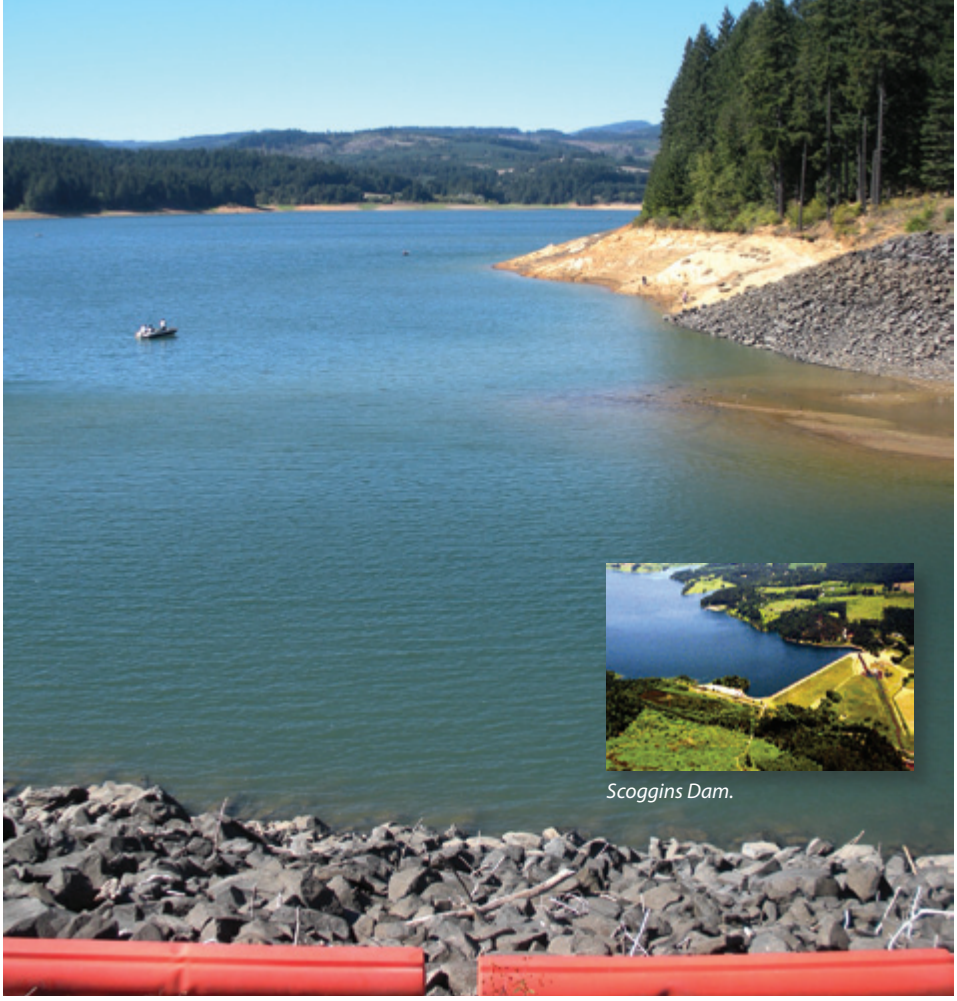
During the summer of 2010, the City pumped out water stored in ASR Well Nos. 1, 2, and 4. ASR Well No. 3, though drilled, is expected to be completed for use by 2015. Using the City's three ASR wells, the City stored approximately 217 MG of drinking water in underground aquifers during the winter and spring of 2009-10, with a total of 577 MG available (injected water plus carry-over storage from the previous year) to pump out in the summer of 2010. From June through October 2010, 144 MG of stored water and native groundwater were recovered (pumped into the water system for consumption) from the ASR wells to help meet summer customer demand. Stored water pumped out of the City's three ASR wells in 2010 made up nearly 6 percent of the City's total annual drinking water distributed to customers.

To ensure that the water quality meets high state and federal standards, rigorous water quality testing and data collection are conducted on water recovered from the ASR wells (on a regular schedule). Results of these tests also show how the aquifer responds to the injection storage and recovery of drinking water. Data collected on the City's ASR program are reported each year to the Oregon Water Resources Department and the Oregon Department of Human Services, Drinking Water Program. ASR has become an important part of the City's water supply system. Beaverton's drinking water during the summer consists of a mixture of both groundwater from ASR wells and treated surface water originating from the upper Tualatin River.

ASR technology continues to enable the City to meet short-term water demand during the summer. Use of ASR also helps to delay the need to purchase new source water, expand water treatment, and build expensive aboveground storage reservoirs and new conveyance facilities. These factors represent large cost savings to the City in the long term and provide a more sustainable use of water supply. As a result, the City has reduced its financial participation in many large JWC water supply projects since 1998 and consequently postponed the purchase of costly supply capacity.

Beaverton's ASR Well No. 4 (pump station inside house).

Continuously monitoring water quality instruments inside the pump house.



Scoggins Dam.

Hagg Lake – The U.S. Bureau of Reclamation "Tualatin Project."

Water Supply, Present and Future

The U.S. Bureau of Reclamation "Tualatin Project" (Scoggins Dam and Hagg Lake)
The Tualatin Project was authorized by Congress in 1966 for irrigation, municipal and industrial water supply, flood control, recreation, conservation and development of fish and wildlife resources, and water quality in Washington County. The U.S. Bureau of Reclamation (USBR) owns the principal features of the Tualatin Project: Scoggins Dam, Henry Hagg Lake (Hagg Lake), Patton Valley Pumping Plant, Spring Hill Pumping Plant, booster pumping plants, and piped lateral distribution systems.

Construction of Tualatin Project facilities began in 1972 and was fully complete in 1978. Scoggins Dam on Scoggins Creek and the formation of Hagg Lake behind the dam provide storage for water to supplement the natural streamflow of the Tualatin River and help to meet the increasing water requirements of the area. Scoggins Dam is a 151-foot-high earthfill structure, which is 2,700 feet long at the crest and contains 4 million cubic yards of material. The upstream side of the dam is faced with rock riprap for protection against wave action; the downstream side is faced with topsoil and planted with grass.

Water from Hagg Lake is distributed by the Tualatin Valley Irrigation District to irrigate approximately 17,000 acres of land. In the summer, Hagg Lake supplies the JWC with half of its supply of raw water, which is treated and distributed to 400,000 residents, businesses, and industries in the cities and urbanized areas of Washington County.

In 2008, the USBR announced that a technical review of Scoggins Dam concluded that further onsite investigations are warranted to evaluate the dam's ability to withstand the forces of a major earthquake. These investigations were prompted by a reevaluation of the seismic hazard in the region.

Scoggins Dam is about 5 miles southwest of Forest Grove, and located in the area that could be affected by seismic activity in the Cascadia Subduction Zone off the Oregon and Washington coast. This area has the potential to experience very large magnitude earthquakes with long durations of strong shaking. Completed in 1975, Scoggins Dam was designed and constructed to then-current earthquake standards. The Scoggins Dam technical review and subsequent investigations are part of a Safety of Dams Program, which routinely evaluates the structural integrity of USBR dams under various conditions to identify potential public safety risks.

USBR Dam Safety Review
During 2008 and 2009, the Partners of the Tualatin Basin Water Supply Project (described below) worked with USBR to develop and review a comprehensive seismic evaluation of the Scoggins Dam. In 2010, USBR studies found that the seismic hazard at Scoggins Dam possibly presents the most severe, or at least among the most severe, earthquake loadings within USBR's inventory of 600 dams (including Grand Coulee and Hoover Dams). The principal seismic source of concern for Scoggins Dam is the Cascadia Subduction Zone, which is capable of producing a magnitude 9.0 earthquake. The 2011 earthquake in Japan was a subduction-zone-type earthquake and provided USBR with new information to help analyze seismic risk to dams in the Northwest.

The USBR has outlined a process to identify and evaluate options for addressing the seismic deficiencies at Scoggins Dam through a Corrective Action Alternatives Study. The modifications would improve the strength of dam. Based on the latest USBR and Tualatin Basin Water Supply Project preliminary cost estimates, the range of costs for Scoggins Dam modifications could be $300 to $600 million. USBR funding for needed dam modifications must be authorized by Congress and the process likely will take up to 5 years.


Tualatin Basin
Summer 2010 Update
Water Supply Partners invest in planning for long-range water needs

Tualatin Basin Water Supply Project (TBWSP)
To ensure clean, safe, and reliable water supplies from the Tualatin River for the environment, commerce, and

residents for the next 40 years, water resource agencies in Washington County formed a water supply partnership, called the Tualatin Basin Water Supply Project (TBWSP). The TBWSP Partners are Clean Water Services, Tualatin Valley Water District (TVWD), Cities of Hillsboro and Beaverton, USBR, and Tualatin Valley Irrigation District (TVID).

The TBWSP, a potential billion-dollar project in Washington County, is a generational investment to build a 50-year water supply source. The TBWSP would double the amount of stored water by expanding Scoggins Dam (Hagg Lake) and other associated facilities south of Forest Grove. The dam and lake are owned by USBR and operated by the TVID.

Approximately one half of Beaverton's current summer water supply originates from Hagg Lake. The water is treated to meet drinking water standards at a nearby water treatment plant and delivered to customers. Beaverton has been a financial partner in the TBWSP since 2001 and has a 3.8 percent share in the project. To date, the Partners have invested $11 million in local funds and secured $2 million in the federal funds for work on the project.

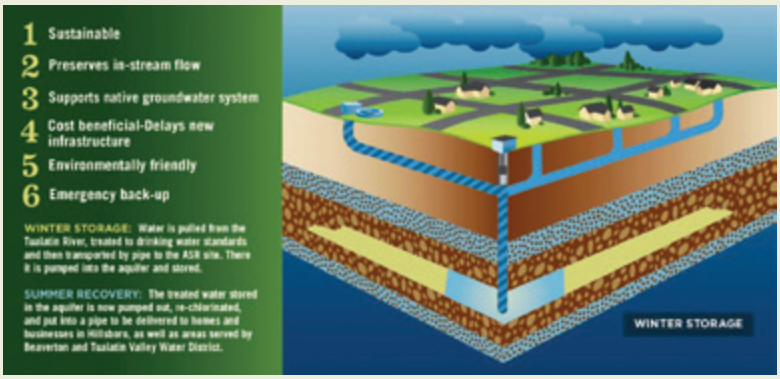
The TWBSP would expand Scoggins Dam to store an additional 50,000 acre-feet of water for a total of 103,000 acre-feet in Hagg Lake (1 acre-foot is the amount of water it takes to fill an acre of area with one foot of water).

Map of TBWSP options.

The TBWSP involves raising the height of Scoggins Dam; construction of a large pipeline from the dam to the JWC water treatment plant; a large pumping station located below the dam to pump water from the Tualatin River into Hagg Lake during the winter; and expansion of the JWC water treatment plant south of Forest Grove. As a partner in the project, the City of Beaverton eventually would own an additional 2,000 acre-feet of water (0.65 billion gallons). Currently, the City has a contract with the USBR that allows use of up to 4,000 acre-feet of water (1.3 billion gallons) each year.

TBWSP Partners, including Mayor Denny Doyle and City engineering staff members, visited Washington, D.C. in March 2011 to meet with members of Oregon's congressional delegation, the Office of Management and Budget (OMB), and USBR to discuss the TBWSP and current efforts to seek funding of the needed modifications to Scoggins Dam. USBR is scheduled to complete the dam safety assessment by December 2011 to determine how to bring the dam up to current seismic standards and to establish more refined cost estimates for necessary modifications. When USBR submits the dam safety modification report to OMB for review, it will not include a dam raise, but the report may provide a basis for seeking legislative approval for a federal cost share of a dam raise. The Partners are pleased that the Scoggins Dam safety assessment activities

Joint Water Commission (JWC) ASR Program



JWC ASR — Typical Winter Storage Diagram (image courtesy of the City of Hillsboro).

The JWC, an intergovernmental water supply agency, is the largest supplier of drinking water in Washington County and second largest supplier in Oregon, behind only the City of Portland. Owner-members are the Cities of Hillsboro, Forest Grove, and Beaverton, and the TVWD.

In 2009, the JWC completed a comprehensive water supply master plan, which included a preliminary evaluation of aquifer storage and recovery (ASR). Specifically, the study included a basin-wide ASR feasibility assessment and a detailed cost evaluation with an implementation schedule.

Results of the 2009 ASR evaluation included recommendations for a phased ASR program with an estimated total capacity of approximately 18 mgd, utilizing up to 16 ASR wells. The ASR program would offer multiple benefits to the JWC: (1) provide emergency storage capacity; (2) help to solidify valuable surface water rights; (3) provide economic benefits by delaying the need for a new transmission pipeline and delaying water treatment plant expansions; (4) provide economic benefits by reducing the required size of a future new transmission pipeline from a 66 inches in diameter to 60 inches in diameter; and (5) allow excess water treatment plant capacity to be used during low demand periods for ASR recharge, providing full utilization of this joint asset. The initial project planned by the JWC would focus primarily on the Cooper Mountain area as the most likely to provide high-yield wells.

Currently, under Phase 1 of the recommended ASR program, an ASR facilities and siting study is being conducted to identify favorable locations and estimate costs to provide the groundwater storage and pumping capacity being sought. The objective of Phase 1 is to identify optimum test well locations, conduct well testing, and prepare facilities plans. In summer/fall 2011, two 1,000-foot-deep exploratory wells will be drilled and tested as potential ASR wells in the Cooper Mountain area. Subsequent phases of the ASR Program will seek to expand the overall system capacity by installing additional wells.

Development of ASR wells will allow the JWC owner-members to inject some of the excess winter flow into the ground and then pump it out in the summer when the Tualatin River is low. This will become a critical supply in the future after Hagg Lake and Barney Reservoir no longer store enough water to meet summer demands of all the JWC customers.

by USBR have emerged as a priority in President Obama's Fiscal Year 2012 budget.

In 2011, the USBR convened a Consultant Review Board. Five nationally recognized engineering experts comprise the Board, which reviewed previous USBR studies and made recommendations as to the appropriate safety mitigation procedures and planning for future dam modifications of Scoggins Dam.

For more information about the TBWSP go to: http://www.tualatinbasinwatersupply.org/

Hillsboro Water Supply Study Project

The City of Hillsboro is analyzing several options for a water source that will provide supply for the next 50 years and could benefit all JWC owner-members. These options are considered viable at first glance because they appear to have sufficient supplies of high-quality water available for municipal use.

Hillsboro is a partner in the Tualatin Basin Water Supply Partnership (TBWSP) to secure a long-term water supply source for the citizens of Hillsboro and greater Washington County. In consideration of the partnership, the City of Hillsboro has formed a multi-agency Technical Advisory Committee (TAC) to assist in its source exploration. Members from the TBWSP are part of the TAC, including the City of Forest Grove, City of Beaverton, Tualatin Valley Water District (TVWD), and Clean Water Services. Engineering staff at the City of Beaverton are part of the TAC, sharing technical input on these important future water supply options. The following are the water supply options being evaluated.

Hillsboro Water Supply Study Project (image courtesy of the City of Hillsboro).

Hagg Lake/Scoggins Dam Expansion - TBWSP

This option is thoroughly discussed above in the section titled Tualatin Basin Water Supply Project (TBWSP).

Mid-Willamette

This option actually contains two alternatives for use of Willamette River water near Wilsonville. The first alternative for this water source would require a Willamette River water treatment plant near Wilsonville. A new raw water intake would be constructed to serve the new treatment plant. A 20-mile-long pipeline also would be built to carry treated water to Washington County residents. The second alternative is similar to the first; however, it would require Hillsboro to partner with agencies that own existing infrastructure. Other agencies currently own a treatment plant that serves the City of Wilsonville and soon will serve the City of Sherwood. Hillsboro is analyzing if the existing raw water intake is large enough to meet the needs of a new or expanded treatment plant. In lieu of building its own intake, Hillsboro could enter into an agreement with the owners of the existing intake. In either case, drinking water providers then would work with Clean Water Services to meet its future flow restoration needs with water from Hagg Lake.

South-Willamette

This option is very similar to the Mid-Willamette Option with the exception of the location of the intake facilities and pipeline routes. Hillsboro is analyzing the costs and feasibility of building a water treatment plant on the Willamette River near the City of Newberg. The water then would be piped to the JWC system either along a western route that would connect to the west side of the JWC transmission system or an eastern route that would connect to the east side of the JWC service area.

Willamette River Water Treatment Plant, serving the Cities of Wilsonville and Sherwood.

Northern Well Field

This option would involve developing a well field, from an existing aquifer, in either northwestern Multnomah County or eastern Columbia County, near Scappoose. Groundwater would be piped to a treatment plant near

Cornelius Pass and delivered to Washington County customers. The drinking water providers then would work with Clean Water Services to meet its future water needs from Hagg Lake.

Portland Agreement

This option would purchase water from the Portland Water Bureau (PWB) to meet future needs. Drinking water providers then would work with Clean Water Services to meet its future water needs from Hagg Lake.

Currently, TVWD, one of Hillsboro's partners in the JWC, purchases some of its water from PWB. As such, a transmission line from the Portland system exists to serve the needs of a portion of Washington County. However, a project of this magnitude likely would require a new transmission line to increase capacity. Between PWB's Bull Run system and its Columbia South Shore Well Field, there is sufficient water available for purchase to meet some portion of the future needs of Washington County.

Near-Term Strategy – JWC Aquifer Storage and Recovery (ASR)

This option is described in detail above in the section titled JWC ASR Program.

ASR involves the injection of drinking water into an aquifer for storage, and then pumping out the stored water for later use by water customers. ASR was pioneered in Oregon and is being used more and more throughout the state. Western Oregon's climate is well-suited for ASR because it rains for about 9 months of the year and often there is almost no rainfall during the months of July, August, and September. ASR wells can be filled with water during the winter when the rivers are at capacity and then pumped to provide water when the weather turns hot and dry, and extra surface water is no longer available.

It is important to note that ASR alone cannot meet all future storage needs in the region. It is a helpful tool for providing stored water during high summer demands. However, ASR requires specific geological formations for successful water storage, and locations for ASR with sufficient capacity and proper functionality can be difficult to secure.

Outdoor Water Conservation

How many times have you seen a person hosing off a driveway or sidewalk? A sprinkler hitting the pavement as often as the lawn? Or someone washing a car with the hose running? These are all–too–common examples of water waste.

They're also common examples of summer watering activities.

Summer is peak water use time, when we spend more time outdoors, cleaning and tending to our lawns, gardens, vehicles, pools, and more. In fact, water use in the Portland metro area can more than double in the summer — an especially big problem because of the limited storage capacity of our reservoirs and the lack of summer rainfall in the Pacific Northwest.

That's why summer is also the peak time for outdoor water conservation, when small steps can make a big difference in overall water use.

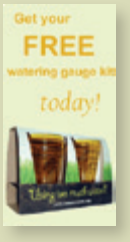
Remember those water wasters we mentioned? Instead of hosing off that driveway or sidewalk, sweep it clean. Instead of sprinkling water on pavement, aim it at its intended target. And instead of washing a car with the hose running, fill up a bucket or two with water — that's all you really need.

Outdoor Conservation Tips

During the warm summer months, we in the Portland metro area spend time outdoors tending to our lawns, growing our gardens, washing our cars — all activities that depend on water. As a result, water usage can double or triple.

Here are 10 ways to curb your water use while still maintaining a green and vibrant landscape.

1. Adjust your sprinklers so that they're watering your lawn and garden, and not the street or sidewalk.
2. Water early in the morning (before 10 a.m) or later in the evening (after 6 p.m.) when temperatures are cooler and evaporation is minimized.
3. Set it, but don't forget it! Whether you have a manual or automatic system, be sure to adjust your watering schedules throughout the irrigation season.
4. Water established lawns about 1 inch per week (a bit more during hot, dry weather). Find out how much to water each week with the Weekly Watering Number (www.conserveh2o.org).
5. Inspect your overall irrigation system for leaks, broken lines, or blockage in the lines. A well-maintained system will save you money, water, and time.
6. Consider replacing some turf area with low water use plants and ornamental grasses. They are easier to maintain than turf, look beautiful, and require far less water.
7. Group plants with like watering needs. Creating "watering zones" in your garden will allow you to give each plant the water it requires — not too much or too little.
8. Add a shut-off nozzle to your garden hose and save about 5 to 7 gallons each minute your hose is on.
9. Adjust your mower to a higher setting. A taller lawn provides shade to the roots and helps retain soil moisture, so your lawn requires less water.
10. Water in several short sessions each day that you water rather than one long session to allow for better water absorption and to prevent run-off.



Get your FREE watering gauge today!

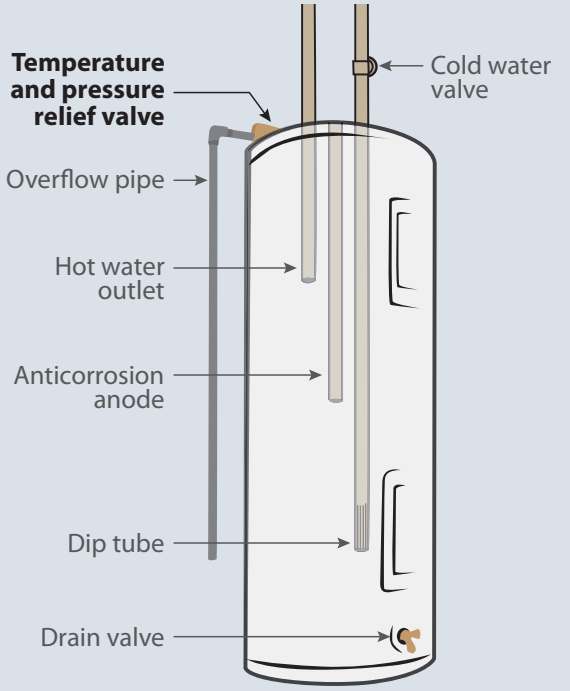
Contact Glen Dorsey at 503-350-4059 (gdorsey@beavertonoregon.gov) for a free watering gauge.

Thermal Expansion

The City of Beaverton, as a public water provider, is required by the Oregon Department of Human Services to provide a notification about thermal expansion to all water users with water heaters.

Most homes and businesses are supplied with hot water from an electric or gas heated tank. However, if not properly maintained, a water heater can become a safety hazard. Water expands in volume as its temperature rises. The extra volume caused by thermal expansion must go somewhere. If not, the heated water creates an increase in pressure.

The temperature and pressure in the water heater are reduced when hot water is withdrawn from a faucet and cold water enters the tank. The increase in pressure from thermal expansion also can be reduced by water flowing back into the public water system. When a check valve, pressure-reducing valve, or backflow preventer is installed in the service pipe, a "closed system" is created. Provisions must be made for thermal expansion in these cases.



What the Homeowner Should Do to Ensure Protection from Thermal Expansion

The homeowner or business owner should check to determine that an expansion tank and temperature and pressure relief valve (T & P valve) are in place. If there is any doubt, the homeowner or business owner should contact a licensed plumber. The T & P valve should be inspected periodically to ensure that it is operating properly. Some T & P valves are equipped with a test lever. Manually lifting the lever unseats the valve, allowing water to discharge. If water continues to leak from the T & P valve after closing, the valve may need to be replaced. A drain line must be installed to avoid water damage and

Cross Connection Control Program

As a City of Beaverton customer, you expect your drinking water to be safe. We are committed to providing you the healthiest, highest quality water, but we need your help. The City has a cross connection control program as required by the Oregon Department of Human Services Drinking Water Program and the EPA.

Weed killers, pesticides, or fertilizers back-siphoned through sprinkler heads or from the ground (saturated by irrigation water) can contaminate water inside irrigation pipes. Without a backflow prevention assembly, a cross connection between plumbing containing a harmful

substance and a drinking water pipe could allow backflow of the harmful substance into your household plumbing or a public drinking water distribution main, where it could be consumed accidentally by you or other City water users. Protection of residential water systems can be accomplished by using a special backflow prevention valve (assembly or device) to prevent potential risk of contamination to the public supply as required by Oregon law.

When backflow occurs, water runs backward through your pipes and into the drinking water system. When this happens, the water flowing backward could contain something that could contaminate the drinking water supply.

Fortunately, there are many things you can do to help prevent contamination of the public water system, and your household plumbing, caused by backflow.

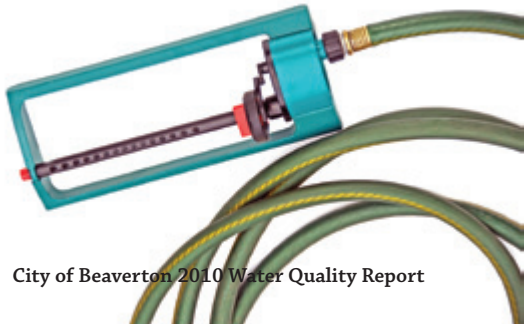
Irrigation systems: Ensure an approved backflow assembly is installed, is in good working condition, and is tested annually.

Swimming pools and hot tubs: Ensure that if a water hose is used to fill these units, it is protected with a hose bib vacuum breaker installed on the faucet.

Residential boilers: Ensure an approved backflow assembly is installed, is in good working condition, and is tested annually.

Private wells: Ensure that a well system is not connected to a public water system. If it is connected, it must have a backflow assembly at the meter, be in good working condition, and be tested annually.

The Oregon Administrative Rules Chapter 333-61-070 regulates that a water purveyor shall (1) carry out a cross connection control inspection program, (2) discontinue water service to premises that fail to install an approved backflow assembly where a cross connection or potential cross connection may exist, and (3) ensure the required backflow assembly is tested on an annual basis by a certified testing company and to be paid for by the homeowner. For assistance or advice in choosing a backflow assembly or if you are not sure which water provider serves you, please contact the City of Beaverton, Cross Connection Control Specialist, at 503-526-2220.



scalding injury when the valve operates. The T & P valve should be removed periodically and visually inspected for corrosion deposits and to ensure it has not been altered or repaired improperly. The above work can best be done by a licensed plumber.

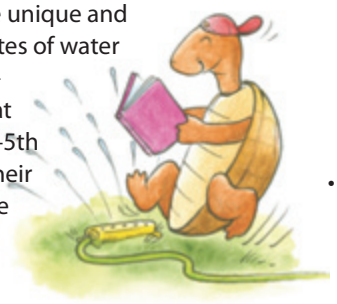
Additionally, a licensed plumber can provide information on other types of expansion devices that are approved in lieu of a thermal expansion tank.

For more information regarding thermal expansion, consult the American Water Works Association, Pacific Northwest Section brochure: http://www.src4.org/ed/thermal-exp.pdf

City of Beaverton Library's Reading Program

Each year approximately 4,367 children sign-up for the City's Summer Reading Program. In 2010, the theme was "Make a Splash" at your Library. After 15 hours of reading, the children receive a package of prizes. The 2,422 children who finished in 2010 were given a fun water conservation bookmark to tie into the theme and further promote water conservation.

The City also provided water conservation performances including "Where's Rosie" and Mad Science "What Do You Know About H2O?", which uses science to highlight the unique and magical attributes of water through hands-on activities that encourage 3rd–5th graders to do their part to conserve water.



Additional Water Quality Information from the U.S. Environmental Protection Agency (EPA)

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in the water include:

- Microbial contaminants, such as cryptosporidium, viruses, and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and also can come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or result from oil and gas production and mining activities.

To ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water to provide the same protection for public health.

A source water assessment completed by the Oregon Departments of Environmental Quality (DEQ) and Human Services (DHS) in 2003 is available. The assessment report can be reviewed at: http://www.deq.state.or.us/wq/dwp/docs/swasummary/pws00379985.pdf

Using Your Water Meter to Test for Leaks

Undetected leaks can be costly. Fortunately, your water meter can help you detect leaks.

How to locate your meter

Your water meter is probably located in front of your house, inside a concrete or plastic meter box that is set flush with the ground. Look for your meter behind the sidewalk at a side lot line near the street. If your home is on a corner lot, your water meter could be located either on the front or side street. Sometimes, meter boxes are not easily visible because of landscaping and other obstructions.

How to read your meter

Reading your water meter is like reading the odometer in your car. Read all the numbers from left to right that appear under the words "cubic feet." The first digit on the right represents 1 cubic foot. The second from the right represents 10 cubic feet. The third from the right (usually a different color) represents 100 cubic feet, or 1 ccf. One revolution of the meter sweep-hand equals 1 cubic foot, or 7.48 gallons.

How to use your meter to test for leaks

To use your meter to test for leaks, turn off all faucets and water-using appliances (such as dish and clothes washers) and be sure no one in the household is using any water. Then go to your water meter and lift the cover of the meter dial. Note the position of the sweep-hand, or use a marker on the lens cover. If you have a typical water meter, there should be no movement of the dials on the meter.

Wait 20 to 30 minutes and check the sweep-hand location again. If the sweep-hand has moved, you probably have a leak somewhere in your system. If the small red diamond-shaped indicator on the face of the meter is moving, it also means you probably have a leak. Retest to be certain.

Then locate the leak by inspecting all the pipes, fixtures, and appliances that use water.

Important Information about Water and Your Health

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised people, such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA's Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

"WaterSense" Rebate Program

look for WaterSense℠ Meets EPA Criteria

The City of Beaverton's Water Conservation Program now offers rebates toward the purchase of new high efficiency toilets (HET) and water efficient clothes washers. This residential pilot program gives City water customers an opportunity to conserve water and energy by replacing older, inefficient toilets and washers.

"We're striving to improve sustainability in the community through partnerships and incentives that will make it easier for residents to make their homes more water and energy efficient," said Mayor Denny Doyle. "Together, we can continue to improve upon the great quality of life we enjoy in Beaverton."

To receive rebates, applicants must have a current Beaverton water account, meet program eligibility requirements, and complete and submit an application for the rebate(s). In addition, customers must recycle old toilets to receive the HET rebate. The current pilot program will end June 30, 2011. Renewal of the rebate program is anticipated in July 2011 (pending adoption of budget by the City Council).

Information about the rebate program, eligibility requirements, and a downloadable application can be found at www.BeavertonOregon.gov/ToiletRebate or www.BeavertonOregon.gov/WasherRebate. For additional questions, contact Glen Dorsey, City Rebate Coordinator, at 503-350-4059 or gdorsey@beavertonoregon.gov.

City Water Projects

The City annually completes water capital improvement projects to maintain, rehabilitate, and replace aging water infrastructure. Following are highlights of four such projects aimed at helping to ensure continued delivery of high quality drinking water:

Nora Road Waterline Improvements Project (just east of 161st Avenue). The City installed approximately 200 feet of new 12-inch-diameter water pipe near the low point of the road to increase the reliability of the City water distribution system and enhance fire protection in the neighborhood.

Hall Boulevard Waterline Improvements Project (Hart Road to Denny Road). The City hired a contractor to replace approximately 1,550 feet of deteriorated water pipe with new ductile iron pipe (DIP) ranging in size from 6 to 24 inches in diameter.

South Central "C" Utility Improvements Project, Phase 3 (3rd Street – Menlo Drive to Fairmount Drive; Fairmount Drive – 3rd Street to 6th Street). The City hired a contractor to replace approximately 750 feet of deteriorated water pipe on 3rd Street, and approximately 500 feet on Fairmount Drive. In this project, both streets received new 8-inch-diameter DIP, fire hydrants, and water services.

Looking Glass Subdivision Utility Improvements Project, Phase 3 (Camden Lane – Lombard Avenue to 11675 Camden Lane). The City hired a contractor to replace deteriorated pipe with 1,224 feet of 12-inch-diameter DIP on Queen Lane (from Bruce Drive to Denney Road); 1,761 feet of 8-inch-diameter DIP on Baker Street; and 1,063 feet of 6-inch-diameter DIP on Camden Lane.

CLOCKWISE FROM RIGHT:
Contractor prepares to install new 24-inch-diameter ductile iron pipe on Hall Boulevard.

Contractor connects to existing City waterline on Camden Lane.

City crews prepare to install new 12-inch-diameter ductile iron pipe on Nora Road.

City of Beaverton 2010 Water Quality Data

Major Sources: Joint Water Commission Water Treatment Plant, and Aquifer Storage and Recovery (ASR) Wells

Regulated Contaminants

REGULATED CONTAMINANT	REGULATORY EXCEEDANCE	MEASURED CONCENTRATION		FEDERAL/STATE WATER QUALITY STANDARD/GOAL	LIKELY SOURCE OF CONTAMINATION
		RANGE	AVERAGE[a]		
Microbiological and Geochemical Parameters					
Total Coliform Bacteria	No	No positive detections in 2010	ND	No detection in 5% of monthly samples (MCLG)	Naturally present in the environment
Turbidity (water treatment plant only)	No	ND	ND	0.3 NTU (TT)	Soil runoff
Nutrients					
Nitrate	No	ND to 0.8 ppm	0.525 ppm	10 ppm (MCL)	Natural erosion, fertilizers, septic tanks and sewage
Metals and Minerals					
Fluoride (water treatment plant and ASR wells)	No	ND to 0.7 ppm	0.475 ppm	4 ppm (MCL)	Water treatment additive, fertilizers and naturally occurring
Fluoride (City meter)	No	0.00 to 1.19 ppm	0.796 ppm	4 ppm (MCL)	
Copper and Lead					
JWC Water Treatment Plant and ASR Wells					
Copper	No	ND	NA	1.3 ppm (Action Level)	Natural erosion and corrosion of household plumbing
Lead[b]	No	ND	NA	15 ppb (Action Level)	
Tap Water Sampling[c]					
Copper	No	ND – 0.09 ppm	NA	1.3 ppm (Action Level)	Natural erosion and corrosion of household plumbing
Lead	No	ND – 0.003 ppm	NA	15 ppb (Action Level)	
Radiological – ASR Wells Only					
Gross Alpha	No	ND	NA	15 pCi/L (MCL)	Natural erosion
Gross Beta	No	ND	NA	50 pCi/L (MCL)	
Disinfection By-products and Residuals within the Distribution System					
Total Trihalomethanes	No	25.8 to 72.7 ppb[d]	42.9 ppb[d]	80 ppb (MCL)	By-product of drinking water chlorination and disinfection
Total Haloacetic Acids	No	23.9 to 35.4 ppb[d]	27.4 ppb[d]	60 ppb (MCL)	
Chlorine	No	0.57 to 0.76 ppm	0.66 ppm	4 ppm (MRDL)	

[a] Average calculations conservatively assume method detection limit value for each non-detect result.

[b] If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Beaverton is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your drinking water, you may want to have your water tested. Information on lead in drinking water testing methods and the steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

[c] The 90th percentile value reported. If the 90th percentile value does not exceed the Action Level, the water system is in compliance and uses the prescribed corrosion control measures. No water samples exceeded the Action Level for copper and no samples exceeded the Action Level for lead. In 2010, as part of the copper- and lead-testing program, 34 samples were collected from individual homes.

[d] Twenty samples were collected in 2010 from the distribution system and tested for trihalomethanes and haloacetic acids, which are by-products of the disinfection process. The range in values represents the average values collected from multiple sites per quarter. The average value represents the rolling average calculated in the fourth quarter of 2010.

Unregulated Contaminants

CONTAMINANT	SECONDARY REGULATORY EXCEEDENCE	MEASURED CONCENTRATION		FEDERAL/STATE WATER QUALITY STANDARD (MCL AND MRDL)	SOURCE OF CONTAMINATION
		RANGE	AVERAGE		
Radon (ASR wells only – one sample)	NA	488 pCi/L	488 pCi/L	No standard	Erosion from natural deposits
Sodium	No	9.9 to 14.9 ppm	12.4 ppm	20 ppm (Advisory Level)	Natural erosion and treatment additive
Chloride	No	3.5 to 5.5 ppm	4.5 ppm	250 ppm (SMCL)	Natural erosion and treatment additive
Sulfate	No	6 to 8 ppm	7 ppm	250 ppm (SMCL)	Common in water
Iron (ASR wells only)	No	ND	NA	300 ppb (SMCL)	Geological rock formation
Total Dissolved Solids	No	75 to 110 ppm	93 ppm	500 ppm (SMCL)	Natural -- depends on dissolved constituents
Odor (ASR wells)	No	No odor to 2 threshold	1 threshold	3 threshold (SMCL)	Organic matter

Definitions

Action Level
The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system provider must follow based on federal and state regulations.

Advisory Level for sodium
Sodium is included on EPA's contaminant list that may require regulation under the Safe Drinking Water Act. For now, it is merely an Advisory Level.

MCL goal (MCLG)
The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.

Maximum contaminant level (MCL)
The highest level of a contaminant that is allowed in drinking water based on federal and state regulations.

Maximum residual disinfectant level (MRDL)
The highest level of a disinfectant allowed in drinking water based on federal and state regulations.

NA – Not applicable.

ND – Not detected.

NTU – Nephelometric turbidity unit (measurement of cloudiness in water).

Part per billion (ppb)
One part per billion corresponds to one penny in $10,000,000 or approximately 1 second in 32 years.

Part per million (ppm)
One part per million corresponds to one penny in $10,000 or approximately 1 minute in 2 years. One part per million is equal to 1,000 ppb.

Picocuries per liter (pCi/L)
Picocurie is a measurement of radioactivity.

Radon is a naturally occurring radioactive gas in the Earth's crust. It is soluble in water and is tasteless, colorless, and odorless. There is no federal regulation for radon levels in drinking water as of this printing. Radon was detected, and historically has been detected, in water recovered from Beaverton's ASR wells at concentrations ranging from 400 picocurries per liter (pCi/L) to around 600 pCi/L. EPA is proposing an MCL of 300 pCi/L in drinking water with an alternative MCL of 4,000 pCi/L for systems that implement a Multi-Media Mitigation Program that would include air monitoring. Exposure to air-transmitted radon over a long period of time may cause adverse health effects. If you are concerned about radon in the air in your home, it is easy and inexpensive to test for it, and for radon in the air exceeding 4 pCi/L, there is typically a simple way to fix the problem. For additional information, call the Oregon Office of Radiation Protection Services at 503-731-4014 or EPA's Radon Hotline at 1-800-SOS-RADON.

Secondary MCL (SMCL)
National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems, but does not require systems to comply. However, states may choose to adopt them as enforceable standards.

TT
A required process intended to reduce the level of a contaminant in drinking water.

Regional Water Providers Consortium (RWPC)

The City of Beaverton and other public water purveyors from Multnomah, Clackamas, and Washington Counties are members of the Regional Water Providers Consortium (Consortium). The Consortium provides a forum for collaboration on water supply issues and conducts activities that provide service to customers in and around the Portland metropolitan area.

The need for regional water supply coordination brought Consortium members together in 1997. Now a volunteer group composed of 22 water providers in the Portland metropolitan area and the regional government Metro, the Consortium works on critical water supply issues and is committed to being a good steward of our limited water resources.

The Consortium serves as a coordinating organization to improve the planning and management of municipal water supplies in the Portland metropolitan area. The Consortium provides a comprehensive, integrated framework of technical information, regional water conservation, resource strategies, and implementing actions to meet the water supply needs of the Portland metropolitan area to the year 2050.

Participation in the Consortium is voluntary and is funded through membership dues. Water providers retain full authority to manage their individual water systems. The Consortium is composed of a Board, Executive Committee, Technical Committee, Emergency Planning Committee, and Conservation Committee.

2010 Water Quality Report

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